

## Decades of Triumph and Turmoil

### Background

From the late 1800s to the mid-1900s, the world saw change at a rate it had never experienced before. Science progressed rapidly as understanding of the atom deepened. Molecules were mapped, and from that mapping came new products — plastics, pharmaceuticals, stronger alloys. Harnessing the nucleus gave promise of bountiful energy in peacetime and mass destruction in time of war. Through study of the electromagnetic spectrum came an ever-increasing ability to probe inward to understand the workings of our body cells and outward to observe the workings of the universe. Some parts of the spectrum became crowded with use as radio and television stations staked their claims to frequencies.

Along with scientific and technological change came societal change. Two world wars left their legacy of broken lives, shattered countries and economies, and radical changes in social outlooks and value systems. Warriors returned to very different homelands. Changes in production techniques also had a huge impact on society. Augmented by new technologies, the assembly line became the backbone of many huge industries, and the need for unskilled workers plummeted.



A World War I battle scene

It is easy to forget that the scientists whose contributions you have studied during this course lived and worked in the midst of

these changes. They, too, were affected, and sometimes even caused or influenced these changes. The goal of this project is to examine the parallel between these scientists' professional lives and what their lives were like when they stepped outside of their offices and laboratories.

### Plan and Present

1. As a class, establish clear guidelines for evaluating the finished project. Discuss specifics such as
  - deadlines
  - expectations for the diary or letter: Will there be a minimum length, a minimum number of societal factors to be included, a specified presentation format?
  - expectations for the poster: Will presentation attractiveness and organization be assessed, as well as the content? Will there be a minimum amount of biographical and scientific material that must be included?
  - expectations for the time line: How do you intend to assess a group's contribution to the overall historical time line?
2. As a class, prepare an initial time line for the period of 1881–1950, listing major scientific advances and discoveries alongside major events in society, such as World Wars I and II, the Depression, the birth of jazz, the first automobiles, the introduction of radio and then television shows, and aviation, from the Wright brothers' first experiment on a North Carolina seashore to space exploration.
3. Divide the study up into six time spans: the two-decade period of 1881 to 1900 and the five individual decades between 1901 and 1950. Assign a team to each era. (You could perhaps allocate the number of members per team according to the number of events in each era.)

4. Each team is to research three major scientific or technological events that occurred during its designated time period and prepare a poster on each event. This presentation must include biographical data for the people involved and an outline of the nature and importance of the event. The team is then to research the major societal events and changes that might have affected those scientists.



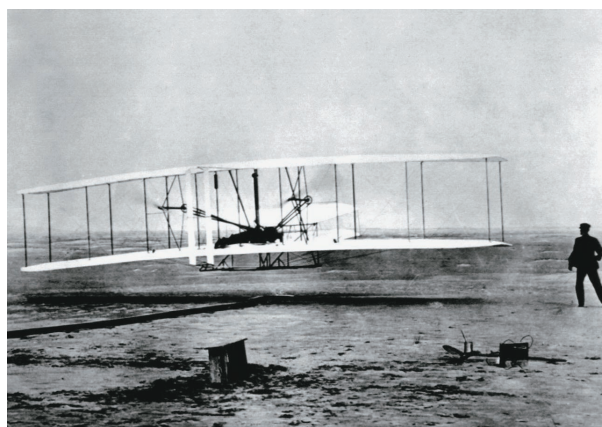
The famous reconnaissance aircraft SR71 *Blackbird* is a descendent of the Wright brothers' *Wright Flyer*, which made history on December 17, 1903, when Orville Wright piloted the first powered, manned, controlled flight. For its debut, the *Wright Flyer* was in the air for 12 s and covered a distance of 37 m. By contrast, the *Blackbird* flew 3500 missions and was so fast that a missile had to be fired 48 km ahead of the plane to reach it in time.

5. As a class, construct an overall time line. This could perhaps be a horizontal version of the time line shown on page xiv, and could be posted around the classroom near the top of two or three of the walls. The names of the scientists along with brief outlines of their contributions or applications of these contributions could be placed on one side of the line, with a listing of the corresponding major societal and world events on the other side of the line. The posters could also be displayed.
6. Working individually or in pairs, you will write letters or diaries that represent what one or more of the featured scientists might have written about their everyday lives.
- What type of transportation did the scientist probably use, locally and for long-distance travel?

## ASSESSMENT

After you complete this project

- **assess your ability to conduct research:** Did you find relevant information?
- **assess your teamwork skills:** How effectively were you able to share your ideas with other members of your group and contribute to the group effort?
- **assess your communication skills:** How effectively did you communicate your ideas in the poster and written portions of this task?



- What type of lighting was available in that scientist's time?
- What were the major newspaper stories at the time the scientist did his or her most notable work?
- What type of medical treatment was available at that time?

## Evaluate

1. Evaluate the extent to which your group met the expectations for the project in relation to the
  - posters
  - written material
  - timeline
2. (a) Which items prepared by your group do you feel were most effective? Explain.  
(b) Which items prepared by your group do you feel were least effective? How might they have been improved?